

The listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1.-10. (Canceled)

11. (Original) A laser irradiation method comprising the steps of;
shaping a first pulsed laser beam having a wavelength not longer than that of visible light into a long beam on a surface, and

moving the surface in a first direction relative to the long beam while irradiating a second laser beam having a fundamental wave into the surface so as to overlap with a region irradiated with the first pulsed laser beam at the same time as the first pulsed laser beam,

wherein the energy of the second laser beam is modulated in synchronization with a pulse oscillation of the first pulsed laser beam.

12. (Original) A laser irradiation method comprising the steps of;
shaping a first pulsed laser beam having a wavelength not longer than that of visible light into a long beam on a surface, and

moving the surface in a first direction relative to the long beam while irradiating a second laser beam having a fundamental wave into the surface so as to overlap with a region irradiated with the first pulsed laser beam at the same time as the first pulsed laser beam,

wherein the energy of the second laser beam is modulated in synchronization with a pulse oscillation of the first pulsed laser beam, and

wherein a net energy of the first pulsed laser beam and the second laser beam absorbed in the surface per unit time is controlled to be constant.

13. (Original) A laser irradiation method according to Claim 11,

wherein the first pulsed laser beam is emitted from an Ar laser, a Kr laser, an excimer laser, a CO₂ laser, a YAG laser, a Y₂O₃ laser, a YVO₄ laser, a YLF laser, a YAlO₃ laser, a glass laser, a ruby laser, an alexandrite laser, a Ti: Sapphire laser, a copper vapor laser, or a gold vapor laser.

14. (Original) A laser irradiation method according to Claim 12,

wherein the first pulsed laser beam is emitted from an Ar laser, a Kr laser, an excimer laser, a CO₂ laser, a YAG laser, a Y₂O₃ laser, a YVO₄ laser, a YLF laser, a YAlO₃ laser, a glass laser, a ruby laser, an alexandrite laser, a Ti: Sapphire laser, a copper vapor laser, or a gold vapor laser.

15. (Original) A laser irradiation method according to Claim 11,

wherein the second laser beam is emitted from an Ar laser, a Kr laser, a CO₂ laser, a YAG laser, a Y₂O₃ laser, a YVO₄ laser, a YLF laser, a YAlO₃ laser, an alexandrite laser, a Ti: Sapphire laser or a helium-cadmium laser.

16. (Original) A laser irradiation method according to Claim 12,

wherein the second laser beam is emitted from an Ar laser, a Kr laser, a CO₂ laser, a YAG laser, a Y₂O₃ laser, a YVO₄ laser, a YLF laser, a YAlO₃ laser, an alexandrite laser, a Ti: Sapphire laser or a helium-cadmium laser.

17. (Currently Amended) A laser irradiation ~~apparatus~~ method according to Claim 11,

wherein the surface is on a film formed over a substrate having a thickness d transparent to the first pulsed laser beam and the second laser beam, and

wherein an incidence angle Φ_1 of the first pulsed laser beam to the surface satisfies an inequality $\Phi_1 \geq \arctan (W1/2d)$, when a side of the long beam, which is on an incidence plane and on the surface, is assumed to have a length of W1.

18. (Currently Amended) A laser irradiation ~~apparatus~~ method according to Claim 12,

wherein the surface is on a film formed over a substrate having a thickness d transparent to the first pulsed laser beam and the second laser beam, and

wherein an incidence angle Φ_1 of the first pulsed laser beam to the surface satisfies an inequality $\Phi_1 \geq \arctan (W1/2d)$, when a side of the long beam, which is on an incidence plane and on the surface, is assumed to have a length of W1.

19. (Currently Amended) A laser irradiation ~~apparatus~~ method according to Claim 11,

wherein the surface is a film formed over a substrate having a thickness d transparent to the first pulsed laser beam and the second laser beam, and

wherein an incidence angle Φ_2 of the first pulsed laser beam to the surface satisfies an inequality $\Phi_2 \geq \arctan (W2/2d)$, when a side of the long beam, which is on an incidence plane and on the surface, is assumed to have a length of W2.

20. (Currently Amended) A laser irradiation ~~apparatus~~ method according to Claim 12,

wherein the surface is a film formed over a substrate having a thickness d transparent to the first pulsed laser beam and the second laser beam, and

wherein an incidence angle Φ_2 of the first pulsed laser beam to the surface satisfies an inequality $\Phi_2 \geq \arctan (W2/2d)$, when a side of the long beam, which is on an incidence plane and on the surface, is assumed to have a length of W2.

21. (Original) A method for manufacturing a semiconductor device comprising the steps of;

forming a semiconductor film over a substrate,

shaping a first pulsed laser beam having a wavelength not longer than that of visible light into a long beam on a surface of the semiconductor film, and

moving the substrate in a first direction relative to the long beam while irradiating a second laser beam having a fundamental wave into the semiconductor film so as to overlap with a region irradiated with the first pulsed laser beam at the same time as the first pulsed laser beam,

wherein the energy of the second laser beam is modulated in synchronization with a pulse oscillation of the first pulsed laser beam.

22. (Original) A method for manufacturing a semiconductor device comprising the steps of;

forming a semiconductor film over a substrate,

shaping a first pulsed laser beam having a wavelength not longer than that of visible light into a long beam on a surface of the semiconductor film, and

moving the substrate in a first direction relative to the long beam while irradiating a second laser beam having a fundamental wave into the surface of the semiconductor film so as to overlap with a region irradiated with the first pulsed laser beam at the same time as the first pulsed laser beam,

wherein the energy of the second laser beam is modulated in synchronization with a pulse oscillation of the first pulsed laser beam, and

wherein a net energy of the first pulsed laser beam and a second laser beam absorbed in the semiconductor film per unit time is controlled to be constant.

23. (Original) A method for manufacturing a semiconductor device according to Claim 21,

wherein the first pulsed laser beam is emitted from an Ar laser, a Kr laser, an excimer laser, a CO₂ laser, a YAG laser, a Y₂O₃ laser, a YVO₄ laser, a YLF laser, a YAlO₃ laser, a glass laser, a ruby laser, an alexandrite laser, a Ti: Sapphire laser, a copper vapor laser, or a gold vapor laser.

24. (Original) A method for manufacturing a semiconductor device according to Claim 22,

wherein the first pulsed laser beam is emitted from an Ar laser, a Kr laser, an excimer laser, a CO₂ laser, a YAG laser, a Y₂O₃ laser, a YVO₄ laser, a YLF laser, a YAlO₃ laser, a glass laser, a ruby laser, an alexandrite laser, a Ti: Sapphire laser, a copper vapor laser, or a gold vapor laser.

25. (Original) A method for manufacturing a semiconductor device according to Claim 21,

wherein the second laser beam is emitted from an Ar laser, a Kr laser, a CO₂ laser, a YAG laser, a Y₂O₃ laser, a YVO₄ laser, a YLF laser, a YAlO₃ laser, an alexandrite laser, a Ti: Sapphire laser or a helium-cadmium laser.

26. (Original) A method for manufacturing a semiconductor device according to Claim 22,

wherein the second laser beam is emitted from an Ar laser, a Kr laser, a CO₂ laser, a YAG laser, a Y₂O₃ laser, a YVO₄ laser, a YLF laser, a YAlO₃ laser, an alexandrite laser, a Ti: Sapphire laser or a helium-cadmium laser.

27. (Currently Amended) ~~A laser irradiation apparatus~~ method for manufacturing a semiconductor device according to Claim 21,

wherein the substrate has a thickness d transparent to the first pulsed laser beam and the second laser beam, and

wherein an incidence angle Φ_1 of the first pulsed laser beam to the surface of the semiconductor film satisfies an inequality $\Phi_1 \geq \arctan (W1/2d)$, when a side of the long beam, which is on an incidence plane and on the surface of the semiconductor film, is assumed to have a length of W1.

28. (Currently Amended) ~~A laser irradiation apparatus~~ method for manufacturing a semiconductor device according to Claim 22,

wherein the substrate has a thickness d transparent to the first pulsed laser beam and the second laser beam, and

wherein an incidence angle Φ_1 of the first pulsed laser beam to the surface of the semiconductor film satisfies an inequality $\Phi_1 \geq \arctan (W1/2d)$, when a side of the long beam, which is on an incidence plane and on the surface of the semiconductor film, is assumed to have a length of W1.

29. (Currently Amended) ~~A laser irradiation apparatus~~ method for manufacturing a semiconductor device according to Claim 21,

wherein the substrate has a thickness d transparent to the first pulsed laser beam and the second laser beam, and

wherein an incidence angle Φ_2 of the first pulsed laser beam to the surface of the semiconductor film satisfies an inequality $\Phi_2 \geq \arctan (W2/2d)$, when a side of the long beam, which is on an incidence plane and on the surface of the semiconductor film, is assumed to have a length of W2.

30. (Currently Amended) ~~A laser irradiation apparatus~~ method for manufacturing a semiconductor device according to Claim 22,

wherein the substrate has a thickness d transparent to the first pulsed laser beam and the second laser beam, and

wherein an incidence angle Φ_2 of the first pulsed laser beam to the surface of the semiconductor film satisfies an inequality $\Phi_2 \geq \arctan (W_2/2d)$, when a side of the long beam, which is on an incidence plane and on the surface of the semiconductor film, is assumed to have a length of W_2 .

31.-54. (Canceled)

55. (Original) A method for manufacturing a semiconductor device comprising the steps of;

forming a semiconductor film over a substrate,

shaping a first pulsed laser beam having a wavelength which is absorbed in the semiconductor film into a long beam on a surface of the semiconductor film, and

moving the substrate in a first direction relative to the long beam while irradiating a second laser beam having a fundamental wave into the semiconductor film so as to overlap with a region irradiated with the first pulsed laser beam at the same time as the first pulsed laser beam,

wherein the energy of the second laser beam is modulated in synchronization with a pulse oscillation of the first pulsed laser beam.

56. (Original) A method for manufacturing a semiconductor device comprising the steps of;

forming a semiconductor film over a substrate,

shaping a first pulsed laser beam having a wavelength which is absorbed in the semiconductor film into a long beam on a surface of the semiconductor film, and

moving the substrate in a first direction relative to the long beam while irradiating a second laser beam having a fundamental wave into the surface of the semiconductor film so as to overlap with a region irradiated with the first pulsed laser beam at the same time as the first pulsed laser beam,

wherein the energy of the second laser beam is modulated in synchronization with a pulse oscillation of the first pulsed laser beam, and

wherein a net energy of the first pulsed laser beam and a second laser beam absorbed in the semiconductor film per unit time is controlled to be constant.

57. (Original) A method for manufacturing a semiconductor device according to Claim 55,

wherein the first pulsed laser beam is emitted from an Ar laser, a Kr laser, an excimer laser, a CO₂ laser, a YAG laser, a Y₂O₃ laser, a YVO₄ laser, a YLF laser, a YAlO₃ laser, a glass laser, a ruby laser, an alexandrite laser, a Ti: Sapphire laser, a copper vapor laser, or a gold vapor laser.

58. (Original) A method for manufacturing a semiconductor device according to Claim 56,

wherein the first pulsed laser beam is emitted from an Ar laser, a Kr laser, an excimer laser, a CO₂ laser, a YAG laser, a Y₂O₃ laser, a YVO₄ laser, a YLF laser, a YAlO₃ laser, a glass laser, a ruby laser, an alexandrite laser, a Ti: Sapphire laser, a copper vapor laser, or a gold vapor laser.

59. (Original) A method for manufacturing a semiconductor device according to Claim 55,

wherein the second laser beam is emitted from an Ar laser, a Kr laser, a CO₂ laser, a YAG laser, a Y₂O₃ laser, a YVO₄ laser, a YLF laser, a YAlO₃ laser, an alexandrite laser, a Ti: Sapphire laser or a helium-cadmium laser.

60. (Original) A method for manufacturing a semiconductor device according to Claim 56,

wherein the second laser beam is emitted from an Ar laser, a Kr laser, a CO₂ laser, a YAG laser, a Y₂O₃ laser, a YVO₄ laser, a YLF laser, a YAlO₃ laser, an alexandrite laser, a Ti: Sapphire laser or a helium-cadmium laser.

61. (Currently Amended) A ~~laser irradiation apparatus~~ method for manufacturing a semiconductor device according to Claim 55,

wherein the substrate has a thickness d transparent to the first pulsed laser beam and the second laser beam, and

wherein an incidence angle Φ_1 of the first pulsed laser beam to the surface of the semiconductor film satisfies an inequality $\Phi_1 \geq \arctan(W_1/2d)$, when a side of the long beam, which is on an incidence plane and on the surface of the semiconductor film, is assumed to have a length of W_1 .

62. (Currently Amended) A ~~laser irradiation apparatus~~ method for manufacturing a semiconductor device according to Claim 56,

wherein the substrate has a thickness d transparent to the first pulsed laser beam and the second laser beam, and

wherein an incidence angle Φ_1 of the first pulsed laser beam to the surface of the semiconductor film satisfies an inequality $\Phi_1 \geq \arctan(W_1/2d)$, when a side of the long beam, which is on an incidence plane and on the surface of the semiconductor film, is assumed to have a length of W_1 .

63. (Currently Amended) A ~~laser irradiation apparatus~~ method for manufacturing a semiconductor device according to Claim 55,

wherein the substrate has a thickness d transparent to the first pulsed laser beam and the second laser beam, and

wherein an incidence angle Φ_2 of the first pulsed laser beam to the surface of the semiconductor film satisfies an inequality $\Phi_2 \geq \arctan(W_2/2d)$, when a side of the long

beam, which is on an incidence plane and on the surface of the semiconductor film, is assumed to have a length of W_2 .

64. (Currently Amended) A ~~laser irradiation apparatus~~ method for manufacturing a semiconductor device according to Claim 56,

wherein the substrate has a thickness d transparent to the first pulsed laser beam and the second laser beam, and

wherein an incidence angle Φ_2 of the first pulsed laser beam to the surface of the semiconductor film satisfies an inequality $\Phi_2 \geq \arctan (W_2/2d)$, when a side of the long beam, which is on an incidence plane and on the surface of the semiconductor film, is assumed to have a length of W_2 .